Remarks/Arguments:

This Amendment adds no new claims, and is provided to amend the specification and claims 1-4, 6, 8-9, 11-16 and 18-19. No new matter has been added. Upon entry of this Amendment, claims 1-20 will be pending.

Information Disclosure Statement

It is unclear whether the Examiner has considered the Non-Patent Literature Documents of the IDS submitted on June 16, 2006, as the Examiner did not initial the column, or line through the references. Clarification is requested.

Objections to the Drawings

The Examiner has objected to Figs. 1, 2, 5, 6 and 9. Regarding elements 110 and 600 in Figs. 1 and 9, the Applicants point out that Fig. 1 describes a device structure and Fig. 9 describes a method. In doing so, element 110 of Fig. 1 describes an input part for receiving an input image (see page 7, lines 29-31), and step 600 of Fig. 9 describes a step for receipt of an input image by the input part (see page 27, lines 20-21).

Regarding elements 120, 313 and 620 in Figs. 1, 5 and 9, element 120 of Fig. 1 describes a part for dividing the input image (see page 8, lines 4-8), and steps 313 and 620 of Figs. 5, 6 and 9 describe steps for dividing the input image (see page 19, lines 18-23, and page 27, lines 29-32).

Regarding elements 130, 315 and 640 in Figs. 1, 5 and 9, element 130 of Fig. 1 describes a part for median filtering (see page 8, lines 9-11), and steps 315 and 640 of Figs. 5, 6 and 9 describe steps for median filtering the image (see page 19, lines 23-25, and page 28, lines 12-13).

Regarding elements 140, 317 and 660 in Figs. 1, 5 and 9, element 140 of Fig. 1 describes a part for scanning the median filtered image (see page 8, lines 15-16), and steps 317 and 660 of Figs. 5, 6 and 9 describe steps for scanning the median filtered image (see page 19, lines 29-30, and page 28, lines 22-23).

Regarding elements 150, 319 and 680 in Figs. 1, 5 and 9, element 150 of Fig. 1 describes a part for extracting an image (see page 8, lines 28-29), and steps 319 and 680 of Figs. 5, 6 and 9 describe steps for extracting the image (see page 20, lines 10-11, and page 28, lines 3-5).

Regarding elements 160, 321 and 690 in Figs. 1, 5 and 9, element 160 of Fig. 1 describes a part for extending the image (see page 9, lines 5-6), and steps 321 and 690 of Figs. 5, 6 and 9 describe steps for extending the image (see page 20, lines 25-26, and page 29, lines 14-16).

Regarding elements 170, 323 and 700 in Figs. 1, 5 and 9, element 170 of Fig. 1 describes a part for accessing the extended image and recognizing characters (see page 9, lines 13-14), and steps 323 and 700 of Figs. 5, 6 and 9 describe steps for outputting the extended image to the recognition part (see page 20, line 32, and page 29, lines 18-19).

Regarding elements 180, 312 and 610 in Figs. 2, 6 and 9, element 180 of Fig. 2 describes a mean filter (see page 11, lines 20-21), and steps 312 and 610 of Figs. 6 and 9 describe steps for mean filtering (see page 21, lines 20-22, and page 27, lines 24-27).

In the above described drawings, the parts of the apparatus of Figs. 1 and 2, and the steps of the methods of Figs. 5, 6 and 9 are provided to show detail, and are labeled with unique identifiers to denote separate elements and steps as described in the specification. The Examiner points to 37 CFR 1.84(p)(4). However, 37 CFR 1.84(p)(4) states that:

> "(4) The same part of an invention appearing in more than one view of the drawing must always be designated by the same reference character, and the same reference character must never be used to designate different parts."

In this case as described above, the Applicants have provided unique numbers for each different system part and method step, corresponding to definitions of each given in the specification for each unique number. Same elements are not given different reference numbers, nor are same numbers used for different system parts and method steps.

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Accordingly, the Applicants believe that the drawings satisfy 37 CFR 1.84(p)(4), and respectfully request the withdrawal of the objection to Figs. 1, 2, 5, 6 and 9.

Objection to the Specification and Claims

The Examiner has objected to claims 1-4, 6, 8-9, 11-14, 16 and 18-19 as including a number of antecedent basis errors. Regarding claims 1-4, 6, 8-9, 11-14, 16 and 18-19, the Applicants have amended the specification as suggested by the Examiner with the exception noted below, and respectfully request the withdrawal of the objection to the claims.

Regarding claim 8, the Applicants disagree with the Examiner's suggested edit to line 12. Specifically, there is no earlier recitation of an input image. Accordingly, "an input image" is believed to be correct (see also claims 1, 6 and 9).

The Applicants have also amended the specification and claims 1, 6, 8, 9 and 15 to correct typographical errors.

Rejections of the Claims under 35 U.S.C. 102

The Examiner has rejected claims 1 and 11 under 35 U.S.C. 102(b), as being anticipated by U.S. Patent No. 7,024,039, issued to Simard et al. (hereinafter Simard). Specifically, regarding claims 1 and 11, the Examiner points to Simard as describing a device for extending a character region in an image having an input part for receiving an input image, a block classification part for classifying the input image and converting pixels, a position search part for searching and determining a position, an ROC extraction part and an ROC extension part, purportedly anticipating the invention as claimed by the Applicants in claim 1, and a method of control thereof purportedly anticipating the invention as claimed by the Applicants in claim 11.

The Simard reference describes a device and method for image retouching, having a boundary detector and an image extender. Specifically, the Simard reference describes a system and method for use with data compression wherein blocking artifacts along a blocking boundary are reduced by extending foregrounds and backgrounds along the boundary.

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In doing so, the image retoucher 100 receives an image input and a binary mask (see col. 6, lines 16-23). It is the information stored in the received binary mask that indicates whether each pixel is in a background or foreground, and where a boundary exists. The Examiner points to the image retoucher 100 as describing a block classification part as claimed by the Applicants. However, the retoucher of Simard receives a digital mask with the image, which has already defined each pixel as a background or foreground pixel. Accordingly, the pixels in the Simard reference are received already classified as either background or foreground pixels in the mask, and the function of the Simard system and method is to detect the boundary (see Fig. 1, in which a boundary detector part is shown, but no classification part, and see col. 7, lines 48-52 and lines 65-67, and col. 8, lines 1-2). As such, the image retoucher 100 does not require nor describe a block classification part as claimed by the Applicants, but relies on the receipt of a binary mask with the image.

Further, the Examiner points to the boundary detector 110 operation of the Simard reference for detecting horizontal and vertical lines of a boundary (see col. 8, lines 2-12), as describing a position search part as claimed by the Applicants and points to the image retoucher 100 as describing a region of contents extractor as claimed by the Applicants. The boundary detector of Simard searches for lines of pixels longer than a threshold to locate the boundary to be used for the expansion of regions near the boundary. There is no disclosure or description of the extraction of an image, nor the extraction of an image as found relative to the boundary, such as an image in a determined character region. The Simard reference simply describes a system and method for locating a boundary, and extending regions near the boundary.

The Examiner has interpreted the image retoucher 100 of the Simard reference as detecting or extracting the image comprising the foreground and/or background. The Applicants respectfully disagree with this interpretation and points to Simard Figs. 5 and 6 which show that the boundary is determined, and the regions near the boundary are simply extended. There is no disclosure or suggestion of extracting an image in a character region, nor the extension of the extracted region to the size of the input image as claimed by the Applicants.

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The extension of the boundary region in the Simard reference is provided to minimize the effect of a spurious boundary. There is no disclosure or suggestion in the Simard reference of the expansion of an extracted image to the size of the input image. As shown in Simard Figs. 5 and 6, expansion is limited to the extension of the boundary region to minimize the effect of a spurious boundary. There is no disclosure or suggestion of an extracted image, and in the case of the expanded background or foreground, there is no disclosure or suggestion of expansion to the size of an input image.

For these reasons, the Applicants assert that the Simard reference does not disclose or reasonably suggest each element as claimed by the Applicants in independent claims 1 and 11. Accordingly, the Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. 102(b) of independent claims 1 and 11.

Further, regarding the rejection of claims 1 and 11 under 35 U.S.C. 102(b), as being anticipated by U.S. Patent No. 7,024,039, issued to Simard et al., the Applicants believe that the Section 102(b) rejection is improper in this matter. Specifically, the Simard reference U.S. Patent No. 7,024,039 has a patent date of April 4, 2006, and Simard, U.S. Publication No. 2003/0202698 has a publication date of October 30, 2003. The Applicants have a U.S. filing date of January 28, 2004. Accordingly, the Applicants believe that neither U.S. Patent No. 7,024,039 nor U.S. Publication No. 2003/0202698, can be used to reject Applicant's claims 1 and 11 under 35 U.S.C. 102(b).

Rejections of the Claims under 35 U.S.C. 103

The Examiner has rejected claims 2-3 and 12-13 under 35 U.S.C. 103(a) as being unpatentable over Simard, in view of U.S. Patent No. 6,782,135, issued to Viscito et al. (hereinafter Viscito), and further in view of U.S. Patent No. 5,900,910, issued to Hirabayashi (hereinafter Hirabayashi). Specifically, regarding claims 2 and 12, the Examiner points to Simard as disclosing the claimed invention with the exception of the block classification part having an image division part, a discrete cosine transform conversion part, an energy calculation part, a threshold calculation part, a classification part and a block filling part. The Examiner points to Viscito and Hirabayashi as disclosing the remaining elements,

purportedly rendering obvious the invention as claimed by the Applicants in claim 2, and a control method thereof purportedly rendering obvious the invention as claimed by the Applicants in claim 12.

The Viscito reference describes a complete perceptual masking model implemented as an encoder-IC (see col. 5, lines 38-60). A part of the complete model includes an energy model. The Hirabayashi reference describes a movement vector detecting apparatus having an evaluation circuit 21 which receives blocks of image data (see Fig. 2, and col. 5, lines 13-17). However, the evaluation circuit 21 of Hirabayashi simply evaluates the pixels of the received image data. There is no disclosure or suggestion of the selective filling of blocks with pixels having first and second brightness values. More specifically, there is no disclosure or suggestion of filling of the character blocks with pixels "converted to have the" first brightness value and filling the background blocks with pixels "converted to have the" second brightness value, as claimed by the Applicants in claims 2 and 12 as amended. The Applicants have amended claims 2 and 12 to more closely reflect an exemplary embodiment of the present invention, in which the pixels with which the blocks are filled, are converted to first and second brightness values. This is not new matter, and is recited throughout the specification (see for example, page 16, lines 16-20).

Accordingly, the Applicants assert that the Simard, Viscito and Hirabayashi references do not disclose or reasonably suggest, alone or in combination, each element as claimed by the Applicants in claims 2 and 12 as amended. That is, the Simard, Viscito and Hirabayashi references do not disclose or reasonably suggest, alone or in combination, a block filling part that selectively fills respective blocks with pixels converted to have a brightness level based upon the block. Accordingly, Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. 103(a) of dependent claims 2 and 12.

Regarding claims 3 and 13, the Examiner points to Simard as disclosing the claimed invention with the exception of the block size and energy calculation. The Examiner points to Viscito as disclosing the remaining elements, purportedly rendering obvious the invention

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as claimed by the Applicants in claim 3, and a control method thereof purportedly rendering obvious the invention as claimed by the Applicants in claim 13.

However, for the reasons stated above, the Applicants assert that the Simard, Viscito and Hirabayashi references do not disclose or reasonably suggest, alone or in combination, each element as claimed by the Applicants in claims 2 and 12 as amended, from which claims 3 and 13 depend. Accordingly, the Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. 103(a) of dependent claims 3 and 13 for the same reasons.

The Examiner has rejected claims 4 and 14 under 35 U.S.C. 103(a) as being unpatentable over Simard, in view of U.S. Patent No. 6,043,823, issued to Kodaira et al. (hereinafter Kodaira). Specifically, regarding claims 4 and 14, the Examiner points to Simard as disclosing the claimed invention with the exception of the character region aspect ratio. The Examiner points to Kodaira as disclosing the remaining elements, purportedly rendering obvious the invention as claimed by the Applicants in claim 4, and a control method thereof purportedly rendering obvious the invention as claimed by the Applicants in claim 14.

However, for the reasons stated above, the Applicants assert that the Simard and Kodaira references do not disclose or reasonably suggest each element as claimed by the Applicants in independent claims 1 and 11, from which claims 4 and 14 depend. Specifically, there is no disclosure or suggestion in Simard and Kodaira of extending the extracted region to the size of the input image. As noted above, the extension of the boundary region in the Simard reference is provided to minimize the effect of a spurious boundary. In the Kodaira reference, a region recognition section measures the size of an extracted section, but this information is used for recognizing type or importance of the section. A user edit process can be performed, but is limited to adjusting Table values (see Fig. 6, and col. 12, lines 42-51). There is no disclosure or suggestion in either the Simard reference or the Kodaira reference of the expansion of an extracted image to the size of the input image.

Accordingly, for the reasons stated above, the Applicants assert that the Simard and Kodaira references do not disclose or reasonably suggest, alone or in combination, each

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element as claimed by the Applicants in 1 and 11, from which claims 4 and 14 depend. Accordingly, the Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. 103(a) of dependent claims 4 and 14 for the same reasons.

The Examiner has rejected claims 5 and 15 under 35 U.S.C. 103(a) as being unpatentable over Simard, in view of Applicants' admitted prior art (hereinafter Background). Specifically, regarding claims 5 and 15, the Examiner points to Simard as disclosing the claimed invention with the exception of performing bilinear interpolation. The Examiner points to the Background as disclosing the remaining elements, purportedly rendering obvious the invention as claimed by the Applicants in claim 5, and a control method thereof purportedly rendering obvious the invention as claimed by the Applicants in claim 15.

However, for the reasons stated above, the Applicants assert that the Simard reference and Applicants' Background do not disclose or reasonably suggest each element as claimed by the Applicants in independent claims 1 and 11, from which claims 5 and 15 depend. Specifically, there is no disclosure or suggestion in Simard or the Background of extending the extracted region to the size of the input image.

Accordingly, for the reasons stated above, the Applicants assert that the Simard reference and Applicants' Background do not disclose or reasonably suggest, alone or in combination, each element as claimed by the Applicants in claims 1 and 11, from which claims 5 and 15 depend. Accordingly, the Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. 103(a) of dependent claims 5 and 15 for the same reasons.

The Examiner has rejected claims 6-8 and 16-18 under 35 U.S.C. 103(a) as being unpatentable over Simard, in view of U.S. Patent No. 6,731,820, issued to Otsuka (hereinafter Otsuka). Specifically, regarding claims 6-7 and 16-17, the Examiner points to Simard as disclosing the claimed invention with the exception of the median filtering. The Examiner points to Otsuka as disclosing the remaining elements, purportedly rendering obvious the

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invention as claimed by the Applicants in claims 6-7, and a control method thereof purportedly rendering obvious the invention as claimed by the Applicants in claims 16-17.

However, as noted above in regard to independent claims 1 and 11, the extension of the boundary region in the Simard reference is provided to minimize the effect of a spurious boundary. There is no disclosure or suggestion in the Simard reference of an ROC extension part for the expansion of an extracted image to the size of the input image. As shown in Simard Figs. 5 and 6, expansion is limited to the extension of the boundary region to minimize the effect of a spurious boundary. There is no disclosure or suggestion of an extracted image, and in the case of the expanded background or foreground, there is no disclosure or suggestion of expansion to the size of an input image. Further, the Otsuka reference simply describes an image filter circuit.

Accordingly, the Applicants assert that the Simard and Otsuka references do not disclose or reasonably suggest, alone or in combination, each element as claimed by the Applicants in independent claims 6 and 16, and from which claims 7 and 17 depend. Accordingly, the Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. 103(a) of independent claims 6 and 16, and request the withdrawal of the rejection of dependent claims 7 and 17 for the same reasons.

Regarding claims 8 and 18, the Examiner points to Simard as disclosing the claimed invention with the exception of the mean filter. The Examiner points to Otsuka as disclosing the remaining elements, purportedly rendering obvious the invention as claimed by the Applicants in claim 8, and a control method thereof purportedly rendering obvious the invention as claimed by the Applicants in claim 18.

However, as noted above in regard to independent claims 1 and 11, the extension of the boundary region in the Simard reference is provided to minimize the effect of a spurious boundary. There is no disclosure or suggestion in the Simard reference of an ROC extension part for the expansion of an extracted image to the size of the input image. As shown in Simard Figs. 5 and 6, expansion is limited to the extension of the boundary region to minimize the effect of a spurious boundary. There is no disclosure or suggestion of an

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extracted image, and in the case of the expanded background or foreground, there is no disclosure or suggestion of expansion to the size of an input image. Further, the Otsuka reference simply describes an image filter circuit.

Accordingly, the Applicants assert that the Simard and Otsuka references do not disclose or reasonably suggest, alone or in combination, each element as claimed by the Applicants in claims 8 and 18, and respectfully request the withdrawal of the rejection under 35 U.S.C. 103(a) of independent claims 8 and 18.

The Examiner has rejected claims 9 and 19 under 35 U.S.C. 103(a) as being unpatentable over Simard, in view of Otsuka, and in view of U.S. Patent No. 5,966,183, issued to Kondo et al. (hereinafter Kondo). Specifically, regarding claims 9 and 19, the Examiner points to Simard as disclosing the claimed invention with the exception of the sub sampling part and step. The Examiner points to Kondo as disclosing the remaining elements, purportedly rendering obvious the invention as claimed by the Applicants in claim 9, and a control method thereof purportedly rendering obvious the invention as claimed by the Applicants in claim 19.

However, as noted above in regard to independent claims 1 and 11, the extension of the boundary region in the Simard reference is provided to minimize the effect of a spurious boundary. There is no disclosure or suggestion in the Simard reference of an ROC extension part for the expansion of an extracted image to the size of the input image. As shown in Simard Figs. 5 and 6, expansion is limited to the extension of the boundary region to minimize the effect of a spurious boundary. There is no disclosure or suggestion of an extracted image, and in the case of the expanded background or foreground, there is no disclosure or suggestion of expansion to the size of an input image. Further, the Otsuka reference simply describes an image filter circuit and Kondo simply describes a signal converter and signal conversion method.

Accordingly, the Applicants assert that the Simard, Otsuka and Kondo references do not disclose or reasonably suggest, alone or in combination, each element as claimed by the

Applicants in claims 9 and 19, and respectfully request the withdrawal of the rejection under 35 U.S.C. 103(a) of independent claims 9 and 19.

The Examiner has rejected claims 10 and 20 under 35 U.S.C. 103(a) as being unpatentable over Simard, in view of Otsuka and Kondo, and in view of U.S. Patent No. 5,684,544, issued to Astle (hereinafter Astle). Specifically, regarding claims 10 and 20, the Examiner points to Simard as disclosing the claimed invention with the exception of the sampling part and step. The Examiner points to Astle as disclosing the remaining elements, purportedly rendering obvious the invention as claimed by the Applicants in claim 10, and a control method thereof purportedly rendering obvious the invention as claimed by the Applicants in claim 20.

However, as noted above in regard to independent claims 1 and 11, the extension of the boundary region in the Simard reference is provided to minimize the effect of a spurious boundary. There is no disclosure or suggestion in the Simard reference of an ROC extension part for the expansion of an extracted image to the size of the input image. There is no disclosure or suggestion of an extracted image, and in the case of the expanded background or foreground, there is no disclosure or suggestion of expansion to the size of an input image. Further, the Otsuka reference simply describes an image filter circuit, the Kondo reference simply describes a signal converter and signal conversion method, and the Astle reference simply describes a system and method of up sampling sub sampled pixels.
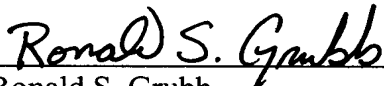
Accordingly, the Applicants assert that the Simard, Otsuka, Kondo and Astle references do not disclose or reasonably suggest, alone or in combination, each element as claimed by the Applicants in claims 9 and 19, from which claims 10 and 20 depend. Accordingly, the Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. 103(a) of dependent claims 10 and 20 for the same reasons.

Conclusion

In view of the above, it is believed that the application is in condition for allowance and notice to this effect is respectfully requested. Should the Examiner have any questions, the Examiner is invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,

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